Chapter 3
Health and Safety

3-1. General

This chapter provides an introduction to the health and safety requirements unique to LLRW and MW site remediation. HTRW health and safety requirements are described more fully in Engineer Regulation (ER) 385-1-92, "Safety and Occupational Health Document Requirements for Hazardous, Toxic and Radioactive Waste (HTRW)," ER 385-1-80, "Ionizing Radiation Protection, " EM 385-1-80, "Radiation Protection Manual," and EM 385-1-1, "Safety and Health Requirements Manual. "

3-2. Responsibilities

a. USACE. USACE has the primary responsibility for ensuring the health and safety of USACE personnel onsite. US ACE has the responsibility of ensuring that all contractors onsite follow USACE accepted health and safety procedures. USACE and the contractor have the responsibility of ensuring that work onsite does not endanger offsite personnel or the environment. All personnel onsite are responsible for maintaining exposures to radiation as low as is reasonably achievable (ALARA). All personnel onsite are required to read and comply with the Site Safety and Health Plan (SSHP).

b. Other governmental agencies. Many sites are under control of other agencies prior to USACE involvement. Where other agencies have the lead, that agency's safety and health programs and plans will be followed by USACE and contractor personnel until responsibility for site safety has been turned over to USACE.

3-3. Programs and Plans

a. Safety and Health Program (SHP). Contractors shall have a written SHP that addresses all aspects of HTRW worker health and safety.

b. SSHP. For each HTRW site, contractors shall have a written SSHP that addresses all expected hazards, and the methods proposed to mitigate those hazards which may be encountered on the site. The SSHP shall address all items discussed in ER 385-1-92, Appendix B. If portions of the contractor's SHP are referenced in the SSHP, those portions of the SHP shall be attached as appendices to the SSHP.

3-4. Radiation Protection Items Addressed in the SSHP

In addition to addressing the health and safety items for HTW sites, the SSHP must address the following items that are unique to radiation sites. These items shall be integrated with the rest of the SSHP to ensure coordination of all health and safety issues onsite.

a. USACE personnel.

(1) USACE will provide the work plan, scope of work, site safety and health plan, etc. which will be reviewed by qualified health physics personnel who are trained in accordance with ER 385-1-92.

(2) USACE will provide site representatives who are trained according to EM 385-1-80.

b. Contractor personnel.

(1) The contractor will provide a certified health physicist, responsible for the review and implementation of all documents and procedures related to radiation protection.

(2) The contractor will provide a sufficient number of radiation protection technicians (sometimes referred to as HP techs) who are trained as required (meeting health physics personnel requirements) in EM 385-1-80 to perform surveys, monitoring, and safety oversight onsite.

(3) The contractor will provide radiation workers who are trained according to EM 381-1-80, (also known as "authorized users assistants") to perform work in the exclusion zone.

c. Contractor dosimetry responsibility.

(1) The contractor has two options concerning dosimetry:

(a) One alternative is that the contractor will monitor personnel exposures, provide appropriate external dosimetry to all personnel exposed to external sources of radiation gamma or neutron radiation), and provide a method for dose determination for personnel who may become internally contaminated with radioactive materials.

(b) The other alternative is that the contractor will provide measurements and documentation that external or internal contarnination could not result in doses to the individuals that exceed 10 percent of the annual TEDE.

(2) A common method for meeting dosimetry requirements includes providing thermoluminescent dosimeters or film badges to all personnel who enter the exclusion zone, and performing air monitoring in the exclusion zone and documenting that the airborne concentrations of radionuclides are below 10 percent of the derived air concentrations listed in 10 CFR 20, Appendix B.

(3) Should a bioassay program be required, personnel should receive a baseline bioassay prior to entering the exclusion zone, periodic bioassays as determined by a health physicist, and a termination bioassay at the end of the project. Bioassay methods depend on the radionuclide and chemical form of concern and may include fecal sample analysis, urinalysis, organ counting, or whole body counting.

d. USACE dosimetry responsibility. USACE will provide appropriate dosimetry for USACE personnel. Dosimeters will be furnished and analyzed by the U.S. Army Ionizing Radiation Dosimetry Program at Redstone Arsenal in Alabama. Should bioassays be required for USACE personnel, these will be coordinated through the U.S. Army Center for Health Promotion and Preventive Medicine at Aberdeen Proving Ground, MD.

e. Equipment.

(1) The contractor will provide surveying equipment capable of detecting the type and intensities of radiation expected onsite.

(2) The contractor will provide monitoring equipment capable of accurately measuring the activity of the radioactive materials expected onsite to the limits of precision required by the regulators for personnel protection and cleanup of the site.

f. Procedures. The contractor shall provide procedures that ensure that doses to onsite personnel and the general public are kept ALARA. These procedures will include, as appropriate:

(1) Limiting the time individuals are exposed to external radiation.

(2) Maintaining as much distance as reasonably possible between personnel and the sources of external radiation.

(3) Providing shielding, when necessary, to lower exposure to ionizing radiation.

(4) Surveying procedures to stop the spread of contamination from the exclusion zone.

(5) Monitoring procedures to ensure that contamination is not released from the site.

(6) Decontamination procedures to ensure that site worker doses are maintained ALARA and to minimize the amount of contaminated waste generated.

g. Emergency contacts. The emergency contacts listed in the SSHP must include the appropriate NRC region or agreement state contact, the appropriate EPA region or state contact, and the Radiation Protection Officer for the USACE District and Division.